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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,166	03/27/2001	Tidhar D. Shalon	IN-0012-2	6311
23379	7590	02/17/2004	EXAMINER	
RICHARD ARON OSMAN SCIENCE AND TECHNOLOGY LAW GROUP 242 AVE VISTA DEL OCEANO SAN CLEMENTE, CA 92672			LUDLOW, JAN M	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,166

Applicant(s)

SHALON ET AL

Examiner

Jan M. Ludlow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

3. Determining the scope and contents of the prior art.
4. Ascertaining the differences between the prior art and the claims at issue.
5. Resolving the level of ordinary skill in the pertinent art.
6. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-14, 17-26, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Little et al ('925).

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9. Little teaches method and apparatus for preparing arrays by dispensing low volume droplets on a substrate. Capillary needles 62 with bores open at both ends are provided in a pin block. The bores are coupled to atmosphere via vent 86. Biasing springs 74 restrict motion and the needles inherently have weight upon which gravity acts to restrict motion. The needles can be made of steel, silica, polymers, or any other suitable material (bridge cols. 7-8). A robotic XYZ movement system (instant actuator) is used to position the pin block to a source plate containing wells (reservoirs larger than a capillary and in fluid contact with the capillary), and then to the substrate, which can be silicon, plastic, metal or any suitable material, flat or pitted (col. 9, lines 10-17). Alternatively, the volume of the bore constitutes a reservoir. Solutions of DNA can be dispensed, and the capillaries may be filled by capillarity (col. 9, lines 40-65). The capillaries may be removeably and replaceably mounted (col. 3, line 69). Lower block 54 acts as a registration device and/or limits lateral movement. To the extent to which the term defines a particular structure, the capillaries are "wire bonding" capillaries in that they are structurally capable of that intended use. **Fluid transfer can be made by contact (col. 3, line 24).**

10. Little fails to explicitly teach "printing".

11. It would have been obvious to one of ordinary skill in the art to provide the small volumes of solution to a flat surface as taught by Little. It is the examiner's position that such dispensing constitutes "printing" as used in the instant application. With respect to deceleration, it would have been obvious to lower the capillary toward the substrate to

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provide the contact disclosed, such lowering requiring deceleration so as not drive the capillary through the substrate.

12. Claims 15, 16, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Little as applied to claims above and further in view of Thomas.

13. Little fails to teach the preservative.

14. Thomas teaches a reagent transfer device having a resilient rubber pad which is abutted with the transfer device outlet opening to prevent evaporation from the device during storage (col. 3, lines 59-64).

15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an evaporation prevention device such as a rubber pad for abutting the capillary openings in the device of Little in order to prevent evaporation of reagents from the openings during storage as taught by Thomas.

16. Claims 1-14, 17-26, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roach ('151).

17. Roach teaches method and apparatus for preparing arrays by dispensing low volume droplets on a substrate. Capillaries 26 with bores are provided. Biasing springs are provided (col. 4, lines 12-21) and the needles inherently have weight upon which gravity acts to restrict motion. A robotic XYZ movement system (instant actuator) is used to position the pin block to a source plate containing wells (reservoirs larger than a capillary and in fluid contact with the capillary), and then to the substrate (col. 3, lines 40-60; col. 4, lines 37-67). Alternatively, the volume of the bore constitutes a reservoir, which is open to atmosphere via the slit. Solutions of DNA can be dispensed (col. 3,

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line 63). To the extent to which the term defines a particular structure, the capillaries are "wire bonding" capillaries in that they are structurally capable of that intended use.

18. Roach fails to explicitly teach "printing".

19. It would have been obvious to one of ordinary skill in the art to provide the small volumes of solution to a flat surface as taught by Roach. It is the examiner's position that such dispensing constitutes "printing" as used in the instant application. With respect to deceleration, it would have been obvious to lower the capillary toward the substrate to provide the contact disclosed, such lowering requiring deceleration so as not drive the capillary through the substrate.

20. Claims 15, 16, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roach as applied to claims above and further in view of Thomas.

21. Roach fails to teach the preservative.

22. Thomas teaches a reagent transfer device having a resilient rubber pad which is abutted with the transfer device outlet opening to prevent evaporation from the device during storage (col. 3, lines 59-64).

23. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an evaporation prevention device such as a rubber pad for abutting the capillary openings in the device of Roach in order to prevent evaporation of reagents from the openings during storage as taught by Thomas.

24. Applicant's arguments with respect to claims above have been considered but are moot in view of the new ground(s) of rejection.

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25. Arguments with respect to Feygin are persuasive. Arguments with respect to Little are not persuasive, but the rejection has been reformulated to clarify the issues.

An additional rejection has been made over Roach et al.

a. With respect to Little, applicant argues that Little does not teach "capillary" printing, but Little uses capillaries and teaches contact, so it is unclear how "capillary" printing defines over the teachings of Little; in addition, this term is not used in the claims. Applicant argues that Little uses applied pressure, but the instant claims do not preclude additional pressure being applied. With respect to the biasing springs, the springs of Little are capable of the claimed function, i.e., they bias the capillaries toward the substrate, and sufficient force applied upward on the tips would cause them to move, e.g., the springs provide incomplete resistance.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jan M. Ludlow whose telephone number is (571) 272-1260. The examiner can normally be reached on Monday-Thursday, 11:30 am - 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jan M. Ludlow
Primary Examiner
Art Unit 1743

Jml
February 8, 2004